

To sum up. The *Terebriporæ* and *Spathiporæ* constitute a very natural group, of which the species are probably very numerous. The interest which it presents is increased by the evidence of its existence during the whole series of secondary and tertiary deposits. I arrange the family *Terebriporidæ* in the order of Cheilostomatous Bryozoa, side by side with the *Hippothoidæ*. The latter family is composed of the true *Hippothoæ* (*H. divaricata*, *patagonica*, &c.) and the new genus *Cercaripora*, Fischer, established for the reception of *Cetea truncata*, *ligulata*, *argillacea*, &c.—*Comptes Rendus*, April 30, 1866, pp. 985-987.

*On the Systematic Position of the Lepidosirens.*

By Professor W. PETERS.

The author recapitulated the external and internal characters which he considers to prove the piscine nature of the genera *Lepidosiren* and *Protopterus*, and then indicated the circumstances which appear to be opposed to the union of these animals with the Ganoids, as recommended some years ago by Gill (*Proc. Acad. Nat. Sci. Philad.* 1861, pp. 13 *et seq.*) and more recently by Brandt (*Bull. Acad. St. Pétersb.* 1865, p. 139). He remarked that the distinctions of the six subclasses of fishes established by J. Müller were to be sought chiefly in the central organs of the circulation and respiration, and that, according to this view, the *Lepidosirens* differ essentially from the *Ganoidei* (without taking into consideration the structure of the auricle and the valves of the aorta) by the absence of a muscular coat in the base of the aorta, and by the form of the laminar branchiæ, united to each other as far as the middle and destitute of cartilaginous supports.

In opposition to the opinion put forward by Dr. Steindachner, that the external branchiæ of *Protopterus* are of importance only during the embryonal and earliest periods of life, it was shown that these organs increase in size even after the animals have attained a reproductive age (at less than  $\frac{1}{3}$  mètre in length), and that, if they are found quite aborted in very old individuals, this cannot be regarded as a normal, but only as an individual occurrence. This is the more probable, as the branchiæ are wanting on the left side of a specimen only  $\frac{1}{2}$  mètre in length in the Berlin Museum. The author further indicated that, even if external branchiæ similar to those of *Protopterus* were to be discovered on *Lepidosiren*, the composite structure of the paired fins of *Rhinocryptis* (*Protopterus*) would remain as an essential difference between the genera.—*Monatsber. Berl. Akad. Wiss.* January 11, 1866, pp. 12, 13.

*Remarks on some Bones of the Dodo (Didus ineptus) recently collected in the Mauritius.* By ALPH. MILNE-EDWARDS.

Some months since, in draining a small marsh called the *Mare aux Songes*, Mr. George Clark, of Mahébourg, discovered therein a considerable number of bones of the Dodo. These bones were sent

to London, where many of them were sold by auction, which has enabled me to procure an important series of specimens, by means of which the skeleton could be almost entirely restored; and I now request permission to bring before the Academy the results furnished by the study of these objects.

The differences of opinion which exist among zoologists with regard to the natural affinities of the Dodo, sufficiently indicate the difficulties they have met with in studying the remains of this bird. Linné and Latham thought that it should be placed along with the Ostriches; Cuvier approximated it to the Penguins; De Blainville believed that it should be classed in the order Raptores, beside the Vultures; Brandt regarded it as having more affinity to the Plovers; and, finally, Reinhardt discovered characters of great resemblance to the Pigeons. So long as only the external form was taken into consideration, the questions thus raised could not be solved. But in 1847 Messrs. Strickland and Melville had the opportunity of studying the bony parts contained in the fragments of feet and in the head of the Dodo preserved at Oxford, and from this examination they concluded that the bird, notwithstanding its singular form, belonged to the family of the Columbidae—an opinion which was shared by most ornithologists, and which Professor Owen has recently adopted in consequence of his examination of the bones lately discovered in the Mauritius. According to this illustrious anatomist, the Dodo would belong to the group of Columbidae, and the peculiarities of structure observed in it, although very considerable, would be of the rank of those which may be regarded as dependent on the adaptation of a bird of this type to an essentially terrestrial mode of life and to a special diet. One of the most remarkable portions of the skeleton of the Dodo is the pelvis; and if Linné, Cuvier, Blainville, and Brandt had been acquainted with this part of the skeleton, they certainly would not have expressed the opinions which I have indicated above. The pelvic apparatus of this bird, although in some respects resembling that of the Columbidae, is distinguished therefrom by anatomical characters of great importance; and these differences are not of the kind observed in the terrestrial species when compared with the best fliers among the Pigeons. The pelvis is not constructed in the same manner in any bird now living.

Nor are the peculiarities in the structure of the sternal apparatus any better explained by the hypothesis of the adaptation of the organic type of the Columbidae to an essentially terrestrial mode of life. At the first glance one is struck by the slightness of its resemblance to that of the Pigeons, and by its general form, which reminds us of the sternum of the *Rhea* more than that of any other bird—although it cannot be assimilated to the sternum of a Struthious bird, on account of the existence of a keel.

The modifications of the sternum which correspond with essentially terrestrial habits, or even with a complete incapability of flight, are of two kinds: sometimes the median keel for the insertion of the great pectoral muscles is diminished and disappears completely without any atrophy of the lateral portions of the sternal shield, as

is seen to be the case in the Struthionidæ; in other cases the keel is developed in a normal fashion, but the lateral plates are very imperfectly ossified and reduced to mere narrow rods. This arrangement occurs in the ordinary Gallinaceous birds, and is carried to a great extent in the Tinamous.

If the Dodo were a Columbide merely modified to live upon the ground, we ought to expect to find a sternum constructed like that of the Pigeons, except a greater or less atrophy of the sternal keel, a narrowness of the hinder part of the entosternal, or an absence of ossification in a portion of the lateral plates; but this is not the character of the sternum in the Dodo. This pectoral buckler, which is remarkably thick and much arched, presents on each side of the keel a very broad and solid surface for the insertion of the thoracic muscles. The structure of the anterior portion is likewise different from that which occurs in the Columbidae; and here everything seems to me to indicate a peculiar ornithological type. The femur, the tibia, the fibula, and the tarso-metatarsal present much resemblance to the bones of the foot in the Pigeons, but also differ in various anatomical characters.

To sum up, we see that the Dodo, as was shown by Reinhardt and other authors cited above, presents incontestable affinities with the Pigeons, but that the resemblances, although striking when we confine ourselves to the comparison of the feet, disappear to a great extent when we take into consideration the other parts of the skeleton, especially the pelvis and the sternum. Now the conformation of these osseous parts is so intimately bound up with that of the economy in general, that it seems to me impossible not to lay great stress upon them when we have to appreciate the zoological affinities of birds. We also see that the modifications which among the Columbidae coincide with an adaptation of the organization more and more to a terrestrial mode of life, do not lead towards those which we have indicated in the Dodo. I think, therefore, that, in a natural ornithological classification, this bird, although occupying a place beside the Columbidae, cannot be regarded as a walking Pigeon, that it cannot enter into the same family, and that it must be classed in a separate division of equal value.—*Comptes Rendus*, April 23, 1866, pp. 929-932.